DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: SCHEDULED INVESTIGATION

A-LV-03669

FACILITY: **MUELLER BRASS PRODUCTS CO.**		SRN **A6262**
LOCATION: **2199 LAPEER AVENUE**		DISTRICT **LIVONIA**
CITY: **PORT HURON**		COUNTY: **ST CLAIR CO**
CONTACT: **JOHN WAGNER/DOUG WESTBROOK**		ACTIVITY DATE: **08/~~30~~27/1999**
REPORT DATE: **09/17/1999**	STAFF: **DLM**	TRAVEL TIME: **2 HRS.**
LEVEL OF INSPECTION: **2**	FACILITY COMPLIANCE STATUS: **NC**	TIME ON ACTIVITY **10 HRS.**
SOURCE CLASS: **SM**	[ ]NSPS [ ]NESHAP [ ]PSD [x]TOXIC [ ]MACT	

INSPECTION RESULTS:

	QTY	POINT/CONTROL	PERMIT/RULE/ORDER	STATUS
1	1	CHIP DRYER #1 DIRECT FLAME AFTERBURNER SINGLE CYCLONE WET SCRUBBER, HIGH EFFICIENCY	PI NO. 489-96C	C
2	1	NO. 3 FURNACE WITH BAGHOUSE (SYSTEM C)	PI NO. 489-96C	C
3	1	FURNACE 1 & 2 WITH BAGHOUSE (SYSTEM A)	PI NO. 489-96C	C
4	1	FURNACE 5 & 6 WITH BAGHOUSE (SYSTEM B)	PI NO. 489-96C	C
5	1	SLUDGE DRYER WITH SCRUBBER	PI NO. 489-96C	NC
6	1	SCRUBBER ON CLEANING LINE	PI NO. 489-96C RULE RULE 201	C NC
7	1	CHIP DRYER #2 WITH BAGHOUSE DIRECT FLAME AFTERBURNER WET SCRUBBER, HIGH EFFICIENCY FABRIC FILTER, HIGH TEMPERATURE	PI NO. 489-96C	C

STATUS CODES: C=COMPLIANCE NC=NONCOMPLIANCE NO=NOT OPERATING U=UNDETERMINED

NAME: David L Morgan DATE: 9/17/99 SUPERVISOR: DKW

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REMARKS:

At 9:30 A.M. on August 27, 1999, a scheduled inspection was conducted at the Mueller Brass Company located at 1925 Lapeer Ave in Port Huron. The purpose of this inspection was to determine the facility's compliance with state and federal air pollution regulations as well as their Permit to Install (PTI) No. 489-96C. John Wagner, the Corporate Director of Environmental Affairs, accompanied me on the inspection.

Plant Description:
Mueller Brass melts and forges brass and aluminum products. The facility consists of five brass melting furnaces controlled by baghouses, a brass cleaning line with a scrubber; two chip dryers with thermal oxidizers, a cyclone, and baghouse controls; and a sludge dryer associated with the wastewater treatment system. The above processes are now permitted under Permit to Install (PTI) No. 489-96C. This permit limits the facility emissions to below the major source thresholds for particulate and HAPs.

Compliance Issues:

PLANT WIDE

Condition 1: The company only had HAP records for lead. However, the company also has HCL emissions and are required to maintain a record of these emissions. The total lead emissions from the facility in 1999 were 0.5 tons. This is well below 9.0 ton per year limit for an individual HAP.
Condition 2: The company has not properly demonstrated monthly HAP emissions for all HAPs at the facility. More specifically, the company did not maintain records of HCL emissions from either the forgings cleaning line or the chip dryers. Thus a violation will be cited.
Condition 3: Total PM-10 emissions from the facility for 1999 were calculated to be 11.9 tons per year. This is in compliance with the 88.0 ton per year limit.
Condition 4: The company has demonstrated monthly PM-10 emissions.

MELTING FURNACES

The facility consists of the following melting furnaces:
a) Casting shop No. 1 consists of induction furnaces 1 & 2. Each furnace has a melting capacity of 30,000 lbs. These furnaces are controlled by a baghouse consisting of 5 compartments with 216 bags in each. The furnaces and baghouse are referred to as System A.
b) Casting shop No. 2 consists of gas-fired furnaces 5 & 6. Each

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furnace has a capacity of 1,000 lbs. These furnaces are controlled by a baghouse consisting of 5 compartments with 216 bags in each. These furnaces and baghouse are referred to as System B.
c) Casting shop No. 3 consists of induction furnace No. 3. This furnace has a capacity of 60,000 lbs. The metal in this furnace is heated to a temperature of 1,800 °F. Emissions are controlled by a baghouse consisting of 8 compartments with 216 bags in each. This furnace and baghouse is referred to as System C.

In addition, furnace 3 has a hood system with 125,000 cfm of draw for the capture of smoke from the furnace. Emissions are then directed to the baghouse control unit outside the building. On February 11, 1993, a required stack test of baghouse C was completed. No additional stack testing is necessary.

Compliance with the special conditions is as follows:

Condition 5: Based on the maximum melt rate (6.11 tons/hour) for furnaces 1&2; a U.S.EPA, AP-42 emission factor of 22.0 lbs of particulate per ton of material processed, and baghouse efficiency of 98%, the particulate emission rate is 2.11 lbs/hr which is below the 2.68 lb/hr. limit.
Condition 6: Based on the maximum melt rate (16.07 tons/hour) for furnace 3; a U.S.EPA, AP-42 emission factor of 22.0 lbs of particulate per ton of material processed, and baghouse efficiency of 98%, the particulate emission rate is 7.07 lbs/hr which is below the 8.21 lb/hr limit.
Condition 7: Based on the maximum melt rate (0.15 tons/hour) for furnaces 5&6; a U.S.EPA, AP-42 emission factor of 22.0 lbs of particulate per ton of material processed, and baghouse efficiency of 98%, the particulate emission rate is 0.07 lbs/hr which is below the below the 1.14 lb/hr limit.
Condition 8: The combined particulate emission from systems A,B, & C was 4.31 tons per year which is well below the 12-month rolling limit of 63.0 tons.
Condition 9: The company processed 155,243 tons of material from August 1998 to August 1999, thus complying with the 180,000 ton limit.
Condition 10: The maximum average melt rate for the furnaces is as follows:

Furnace	Melt rate(tons/hour)	Permit Limit
1&2	6.11	8.50
3	16.07	17.50
5&6	0.150	1.00

Condition 11: Baghouses of Systems A, B, and C were all

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installed and appeared to be operating properly.
Condition 12: All compartments of the baghouses associated with System A, B, and C had pressure gauges installed.
Condition 13: Each operating compartment is required to operate within a pressure drop of 3.5 and 8.0 inches of water gauge. At the time of the inspection all pressure drops were operating around 6.0 inches of water gauge, +/- 1 inch.
Miscellaneous: No visible emissions were observed from the baghouses exhaust. However, in the plant around furnace No. 3, there were fugitive particulate emissions which were not captured by the hood. Based on previous inspections, these fugitive emissions occur when zinc is added to the melting furnace. Mr. Wagner indicated that the company was still in the process of adjusting new hooding on No. 3 and would work to reduce the fugitive emissions. Particulate matter collected in the baghouse are collected in polypropylene bags in a collection room and sent out for brass reclaiming.

CHIP DRYERS NOS. 1 & 2

Chip dryer No. 1 (the old dryer) consists of a cyclone, an afterburner, and a scrubber. Chip dryer No. 2 (the new dryer) consists of an afterburner, scrubber, and a baghouse. The dryers are used to remove water, oils, and other impurities from brass chips. At the time of the inspection, only chip dryer No. 1 was operating. Permit conditions are in compliance as follows:

Condition 14: A particulate stack test was conducted on Jan. 19, 1992 for dryer No. 1. The test results are as follows:

Run #	Lbs./1,000 lbs..	Permit limit
1	0.018	0.10
2	0.049	0.10
3	0.032	0.10

Condition 15: The stack test results for dryer No. 1 indicated compliance with the permit limit of 2.4 pounds/hour (See stack test results in plant file). Particulate emissions from August 1998 to 1999 for dryer 1 were 7.42 tons. This complies with the 10.6 ton limit.
Condition 16: Stack test results for dryer No. 2 indicate compliance with the permit limit of 2.7 lbs/hr (See stack test results in plant file). Particulate emissions from August 1998 to 1999 for dryer 2 were 4.43 tons. This complies with the 11.8 ton limit.
Condition 17: Records of the hydrochloric acid emission rate were not kept. This is a violation.
Condition 18: All afterburners, cyclones and baghouses

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associated with each dryer appeared to be installed and operating properly.
Conditions 19&20: The stack height on dryer No. 1 is approx. 71 feet above ground and dryer No. 2 is approx. 65 feet above ground, thus in compliance.
Condition 21: The temperature of the thermal oxidizer for dryers 1 and 2 were 1,519° F and 1,537° F. These temperatures are above the 1,500°F minimum requirement.
Condition 22: Dryer No. 2 baghouse was equipped with a pressure indicator and the afterburner equipped with a temperature gauge. The company plans to relocate the pressure gauges to the main floor.
Condition 23: The controls are not bypassed on either dryer. Automatic process shut down if malfunction.
Miscellaneous: Except for moisture in the plume from dryer No. 1, no other visible emissions were verified.

BRASS AND ALUMINUM FORGINGS CLEANING LINE.

This line consists of one nitric acid tank, one nitric acid/hydrochloric acid tank, one caustic solution tank and six water rinse tanks. The nitric acid/hydrochloric acid tank and two rinse tanks are vented to a wet scrubber. The remaining tanks are vented to the ambient air without going through the scrubber. Compliance with the permit conditions is as follows:

Condition 24: Nitric acid emissions are based on data from a report dated January 11, 1993. Average nitric acid emissions were 9.29 mg/cu.m. This is also based on the assumption that the new scrubber has the same operating parameters. The permit limits are 40 mg/cu.m and 0.3 lbs./hr.
Condition 25: Hydrochloric acid emissions are based on data from a report dated January 11, 1993. Average hydrochloric acid emissions were .79 mg/cu.m. This is also based on the assumption that the new scrubber has the same operating parameters. The permit limits are 3.3 mg/cu.m and 0.03 lbs./hr.
Condition 26: No visible emissions were observed.
Condition 27: The scrubber appeared to be installed and operating properly. Scrubber water was circulating in the unit. Plant personnel indicated that the pressure gauge does not work. However, it is not required by the permit.
Condition 28: The stack height is 55 feet above ground, thus in compliance with permit requirements.

Miscellaneous: During the inspection it was determined that the company had installed a second nitric acid tank without obtaining a permit. In addition, this nitric acid tank, which is used to

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clean aluminum forgings, is vented to the ambient air and does not pass through the wet scrubber. Because the tank was installed without a permit, this is a violation of Rule 201.

Also because of recent complaints of fallout from this line, observations were made on the roof around the stacks to the cleaning line. There was no apparent fallout, chemical corrosion, or any other evidence on the stack, around the stack or on the roof that would indicate a problem with the cleaning line. Please see the plant file for additional correspondence from the company regarding the cleaning line.

ATLANTIS SLUDGE DRYER

This dryer is used for drying sludge collected from the plant wastewater treatment system. Permit conditions are in compliance as follows:

Condition 29: This process was not operating no visible emissions were observed.
Condition 30: No particulate emission records were kept for the sludge dryer. This is a violation.
Condition 31: The wet scrubber was installed and maintained properly.
Condition 32: The stack is 43 feet above ground, thus in compliance with permit requirement.
Condition 33: No material substitutions were made.
Condition 34: No request for moisture content of the sludge was made.

Summary:
Mueller Brass Company will be cited for not maintaining required recordkeeping and for installing a nitric acid tank without an air use permit. No other non-compliance issues were identified as a result of this inspection.

Company records used to determine compliance are attached.

CALCULATIONS BASIS:

Chip Dryer — PM-Total = For Chip Dryers Barry use highest rate of the 3 runs ea dryer during stack test of 11 Aug 98; I.e. R-Dryer, the test gave 0.114 lb/hr max.

Baghouse — Barry used Swanson emissions test data of 0.045lb/hr/louver and applied to 3 baghouses.

Baghouse — C has 16 louvers, A&B have 10 ea = 36 louvers.

Baghouse — This 36 x 0.045lb/hr = 1.62 lb/hr PM from all 3 baghouses.

Permit Conds #5, 6, 7 & 8 place individual and aggregate limitation on each bag house per (hour) & 12 mo. Rolling Total, A=(5.02lbs) 22.0 tons; B=(1.14 lbs) 5.0 tons; C=(8.21) 36.0 tons. Combined limits are 63.0 tons/12 mo. rolling.

HAP LEAD factors from Barry's emissions test: Total Baghouse lead is 2.0% of Total PM; R-Dryer it is 3.18% lead of Total PM; A-Dryer, lead is 8.0% of Total PM

AIR EMISSIONS - MONTHLY CALCULATIONS — This copy run = 30-Aug-99

PM-TOTAL Year 1999 — file:ENV-JDW\air\permit-emiss-99

Month	BAGHOUSES A,B&C* Hours of Operation	BAGHOUSES A,B&C* Pounds Emitted	BAGHOUSES A,B&C* Tons Emitted	BAGHOUSES A,B&C* Rolling 12 Mo. Total, Cond. #6 Pounds Emitted	BAGHOUSES A,B&C* Rolling 12 Mo. Total, Cond. #6 Tons Emitted	BAGHOUSES - Rolling 12 Mo. Total, Cond. #5, 6, & 7 System A Ton; Cond #5	System B Tons; Cond #7	System C Tons; Cond #6	R-Dryer (#1) Pounds Emitted	R-Dryer (#1) Tons Emitted	R-Dryer (#1) Lbs/Hr (Mo. Ave) Cond #30	R-Dryer (#1) ROLLING 12 Mo. PERIOD, Cond #15 TOTAL Pounds	R-Dryer (#1) ROLLING 12 Mo. PERIOD, Cond #15 TOTAL Tons	A-Dryer (#2) Pounds Emitted	A-Dryer (#2) Tons Emitted	A-Dryer (#2) Lbs/Hr (Mo. Ave) Cond #31	A-Dryer (#2) ROLLING 12 Mo. PERIOD, Cond #16 TOTAL Pounds	A-Dryer (#2) ROLLING 12 Mo. PERIOD, Cond #16 TOTAL Tons	Plant-Wide Total PM Emitted Pounds Emitted	Plant-Wide Total PM Emitted Tons Emitted
January	592	959.0	0.480	13167	6.58	3658	3658	5852	1131	0.6	1.91	15524	7.76	675	0.337	1.14	9266	4.63	2764.6	1.382
February	672	1088.6	0.544	13167	6.58	3658	3658	5852	1284	0.6	1.91	15524	7.76	766	0.383	1.14	9266	4.63	3138.2	1.569
March	800	1296.0	0.648	13258	6.63	3683	3683	5892	1528	0.8	1.91	15631	7.82	912	0.456	1.14	9330	4.66	3736.0	1.868
April	616	997.9	0.499	13090	6.54	3636	3636	5818	1177	0.6	1.91	15433	7.72	702	0.351	1.14	9211	4.61	2876.7	1.438
May	664	1075.7	0.538	12960	6.48	3600	3600	5760	1268	0.6	1.91	15280	7.64	757	0.378	1.14	9120	4.56	3100.9	1.550
June	728	1179.4	0.590	12973	6.49	3604	3604	5766	1390	0.7	1.91	15295	7.65	830	0.415	1.14	9129	4.56	3399.8	1.700
July	584	946.1	0.473	12714	6.36	3532	3532	5651	1115	0.6	1.91	14990	7.49	666	0.333	1.14	8947	4.47	2727.3	1.364
August	664	1075.7	0.538	12584	6.29	3496	3496	5593	1268	0.6	1.91	14837	7.42	757	0.378	1.14	8856	4.43	3100.9	1.550
September	0	0.0	0.000	11534	5.77	3204	3204	5126	0	0.0	NA	13599	6.80	0	0.000	NA	8117	4.06	0.0	0.000
October	0	0.0	0.000	10601	5.30	2945	2945	4712	0	0.0	NA	12499	6.25	0	0.000	NA	7460	3.73	0.0	0.000
November	0	0.0	0.000	9629	4.81	2675	2675	4280	0	0.0	NA	11353	5.68	0	0.000	NA	6776	3.39	0.0	0.000
December	0	0.0	0.000	8618	4.31	2675	2675	4280	0	0.0	NA	10161	5.08	0	0.000	NA	6065	3.03	0.0	0.000
SUM =	5320	8618.4	4.309						10161	5.1				6065	3.032				24844.4	12.422

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All based on Barry's notes

Notes: * Emission test yield 0.045 lb/hr ea louver x 36 louvers = 1.62 lb/hr

Assumes maximum charge rate as done during emission testing

This is worse case & yields maximum emissions

Baghouse A to #1&2 furnace, 10 louvers

Baghouse B to #5&6 furnace, 10 louvers

Baghouse C to #3 furnace, 16 louvers

AIR EMISSIONS - MONTHLY CALCULATIONS

file:ENV-JDW\air\permit-emiss-9 **PM-10** **Year 1999**

Month	BAGHOUSES A,B&C* Hours of Operation	BAGHOUSES A,B&C* Pounds Emitted	BAGHOUSES A,B&C* Tons Emitted	R-Dryer (#1) Pounds Emitted	R-Dryer (#1) Tons Emitted	A-Dryer (#2) Pounds Emitted	A-Dryer (#2) Tons Emitted	Plant-Wide Total PM-10, Cond #4 Pounds Emitted	Plant-Wide Total PM-10, Cond #4 Tons Emitted	ROLLING 12 MOS. PERIOD, Cond #3 Total Lbs (Linked)	ROLLING 12 MOS. PERIOD, Cond #3 Total Tons
January	592	911.1	0.456	1074.2	0.537	641.1	0.321	2626.4	1.313	36059.9	18.0
February	672	1034.2	0.517	1219.3	0.610	727.8	0.364	2981.3	1.491	36059.9	18.0
March	800	1231.2	0.616	1451.6	0.726	866.4	0.433	3549.2	1.775	36308.3	18.2
April	616	948.0	0.474	1117.7	0.559	667.1	0.334	2732.9	1.366	35846.9	17.9
May	664	1021.9	0.511	1204.8	0.602	719.1	0.360	2945.8	1.473	35492.0	17.7
June	728	1120.4	0.560	1321.0	0.660	788.4	0.394	3229.8	1.615	35527.5	17.8
July	584	898.8	0.449	1059.7	0.530	632.5	0.316	2590.9	1.295	34817.7	17.4
August	664	1021.9	0.511	1204.8	0.602	719.1	0.360	2945.8	1.473	34462.7	17.2
September	0	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	31587.9	15.8
October	0	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	29032.5	14.5
November	0	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	26370.6	13.2
December	0	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	23602.2	11.8
SUM =	5320	8187.5	4.094	9653.1	4.827	5761.6	2.881	23602.2	11.801		

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NOTE: This is worse case & yields maximum emissions

Per Barry's letter to AQD figure PM-10 is 95% of PM-TOTAL

AIR EMISSIONS - MONTHLY CALCULATIONS

HAP-LEAD Year 1999 file:ENV-JDW\air\permit(C)-emiss-99

Month	BAGHOUSES A,B&C ^^ Hours of Operation	BAGHOUSES A,B&C ^^ Pounds Emitted	BAGHOUSES A,B&C ^^ Tons Emitted	R-Dryer (#1)** Pounds Emitted	R-Dryer (#1)** Tons Emitted	A-Dryer (#2)*** Pounds Emitted	A-Dryer (#2)*** Tons Emitted	Plant-Wide HAP-LEAD, Cond #2 Pounds Emitted	Plant-Wide HAP-LEAD, Cond #2 Tons Emitted	ROLLING 12 Mos PERIOD, Cond #1 Total Lbs (Linked)	ROLLING 12 Mos PERIOD, Cond #1 Total Tons
January	592	19.2	0.010	36.0	0.018	54.0	0.027	109.1	0.055	1498.3	0.7
February	672	21.8	0.011	40.8	0.020	61.3	0.031	123.9	0.062	1498.3	0.7
March	800	25.9	0.013	48.6	0.024	73.0	0.036	147.5	0.074	1508.6	0.8
April	616	20.0	0.010	37.4	0.019	56.2	0.028	113.6	0.057	1489.5	0.7
May	664	21.5	0.011	40.3	0.020	60.6	0.030	122.4	0.061	1474.7	0.7
June	728	23.6	0.012	44.2	0.022	66.4	0.033	134.2	0.067	1476.2	0.7
July	584	18.9	0.009	35.5	0.018	53.3	0.027	107.7	0.054	1446.7	0.7
August	664	21.5	0.011	40.3	0.020	60.6	0.030	122.4	0.061	1431.9	0.7
September	0	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	1312.5	0.7
October	0	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	1206.3	0.6
November	0	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	1095.7	0.5
December	0	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	980.7	0.5
SUM =	5320	172.4	0.086	323.1	0.162	485.2	0.243	980.7	0.490		

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Barry's Notes

Assumes maximum charge rate as done during emission testing

This is worse case & yields maximum emissions

** From stack tests emission was 3.18% LEAD

*** From stack test on A-Dryer was 8% LEAD

^ JDW's notes this may not be HAP but Criteria, didn't go thru afterburner for conversion

Material Melted - 1999

				Condition #24							
Month		Hours of Operation Maximum	Total Tons Melted #1 & #2	Furnaces 1 & 2 Combined Ton/Hr (Limit 8.5tph)	Total Tons Melted #3	Furnaces #3 Tons/Hr (Limit 19.0 tph)	Total Tons Melted #5 & #6	Furnaces 5 & 6 Combined Tons/Hr (Limit 1.0tph)		Total Tons Melted this Month	Total Tons Melted-12 Mo Rolling Period - Cond #9
January		592	3471.5	6.11	6682.6	11.29	68.0	0.11		10,222	158,034
February		672	3118.7	5.20	9933.9	14.78	80.5	0.12		13,133	157,669
March		800	4307.6	5.44	12554.1	15.69	92.5	0.12		16,954	157,357
April		616	2737.2	4.82	9544.0	15.49	92.5	0.15		12,374	155,930
May		664	2922.5	5.07	10672.2	16.07	53.2	0.08		13,648	157,361
June		728	3451.5	4.74	11555.4	16.05	21.8	0.03		15,029	155,757
July		584	2673.9	4.71	7756.0	13.28	15.6	0.03		10,446	155,026
August		664	2599.1	4.51	9561.1	14.40				12,160	155,243
September		0	0.0	NA	0.0	NA				0	140,040
October		0	0.0	NA	0.0	NA				0	128,526
November		0	0.0	NA	0.0	NA				0	117,389
December		0	0.0	NA	0.0	NA				0	117,389
SUMS =		5320	25282.0		78259.3		424.1			103,965	